

Soft Sugar Cakes

by C.O. Willits

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The year 1967 has been a difficult one for maple sirup producers. Not only was the crop one of the smallest on record, but much of the sirup made had a high invert sugar content. To make matters worse, in many sections of the maple area the summer was one of the wettest on record, and the high humidity played havoc with the storage of soft sugar cakes. This was attested to by the fact that for the first time we have received numerous letters asking why the soft sugar cakes became deformed, and some even mushy, after a few weeks on the shelf, and some had pronounced mold growth. The answer is relatively simple but it took a year

such as 1967 to focus attention on the problem. The deformation of the soft sugar candies is due to two causes.

(1) High invert sugar.

Sirups made during the 1967 sap season were for the most part made late in the season and because of the warm weather they were unusually high in invert sugar. Therefore the soft sugar made from these sirups also contained more than the usual amounts of invert sugar. Invert sugar is a good humectant; i.e., it has the property of taking moisture from the atmosphere.

(2) High humidity during storage of the cakes.

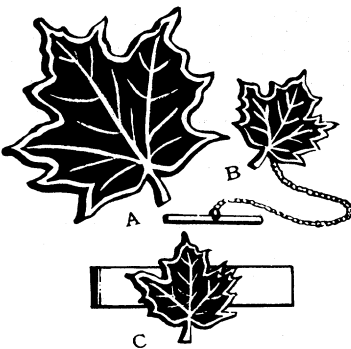
You will recall, the summer and fall of 1967 were seasons of unusually high precipitation. Therefore, due to the high humidity the soft sugars, with their high invert content, picked up enough moisture to cause the cakes to become deformed and, in some extreme cases, to melt and appear mushy. This softening of the sugar cakes does not

happen overnight, but takes place during prolonged storage. Thus, many producers who had supplies of the sugar cakes that had been kept in storage for future sales were surprised to find that when these cakes were removed from storage or left on the sales shelf too long they were so badly spoiled as to be unsalable. However, they were not a total loss for they could be reworked to sirup or used to make other sugar products. The moist sugar cakes are good sites for mold growth.

How can this situation be avoided in the future?

1. Test the sirup that is to be used for making the soft sugar cakes for its invert sugar content. This test is the simple chemical test described in the U.S. Department of Agriculture Leaflet No. 400, "Testing Maple Sirup for Creaming." Many producers have this leaflet but those who do not may have to wait for a time to obtain a copy. The current issue is exhausted and a revised leaflet is now in press and should be available soon. Sirup that tests more than 3% invert sugar is not recommended for use in making the soft sugar cakes, and sirup that tests over 5% should never be used for making sugar cakes.

Here is a case where a little is



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WHY BE CONCERNED?

"Young men think old men are fools; old men think young men are fools." If this saying is true, we better be concerned. The middle aged know neither the young or old are always right and must weigh the ideas of each carefully and come up with the right answers to continue to enjoy the fruits of this earth - that God, with man's help, has so generously provided for us here in America. In the past we have enjoyed an abundance of food, fiber and freedom never achieved anywhere else on earth. Let's keep it that way.

To achieve better marketing of maple syrup for New York State maple producers, a Maple Marketing Division of the New York Farm Bureau Marketing Association was set up in 1965. Why Farm Bureau? Because it has a Marketing Association which was organized in 1960 as a vehicle for its members to use to improve the marketing of commodities they produced. Also, Farm Bureau had similar organizations in 25 other states at that time and has added more since. It was hoped that the future would see similar Maple Marketing Associations set up in each maple producing state. By all working together through our National Farm Bureau Marketing Assoc. we could have better coordination of market information, supply and demand, and possibly in the future be able to build a syrup bank. Then retailers in all states could be guaranteed a good supply of a quality pack and product. In poor production years as well as in good, our customers could be sure of a continued supply of quality maple syrup. By doing this we would be better informed on production costs and markets, and by pooling our supply, could accept orders that any individual or small group could not fill. It would also improve our buying power and get better prices for syrup for all producers.

We in New York feel that we might better build a strong organization gradually than go fast and fail as some new organizations have done in the past. We

have doubled our membership in the past two years and are still growing. We have been of real service to our members by keeping them informed on prices, markets, acting as a broker, and in some cases actually handling syrup. Many of our members have purchased their own drums and held syrup for us to market, giving us a supply to fill orders of those who run short and need more to supply their customers until next season. We are convinced we have been instrumental in the increase in the price of bulk syrup which was evident in the past two years; and as with other things Farm Bureau achieves, non members benefit as well as members.

The Maple Marketing Division of New York Farm Bureau Marketing Association is so organized that it can operate in any extent the operations committee and members desire. Some of the association's aims are:

1. Work for a selling price reflecting true value of the syrup sold by tak-

ing into consideration cost of production, supply, demand and other economic factors.

2. Be better assured of a satisfactory market for bulk syrup and reduce fear of not having a market.

3. Purchase supplies, containers, etc. and take advantage of quantity discounts.

4. Develop a processing operation and retail markets as time and conditions warrant.

If the maple producers in your state would like to organize a similar group, I will be willing to help all I can. I am sure Leland Beebe, our Farm Bureau field man in charge of Maple Marketing, will also be glad to assist you and is probably better qualified to furnish details on organization structure and by-laws than I am.

The future of Agriculture is what we make it. The same applies to Maple. With God's help I am sure it will be brighter.

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good, but too much is bad. A little invert sugar is necessary to prevent graininess, and U.S. Department of Agriculture Handbook No. 134 tells how to use a "doctor" to obtain a small amount, 1-2% invert sugar. However, too much invert sugar (above 3%) is bad since it favors the gathering of moisture, deformation of the sugar cakes and mold growth when they are stored under conditions of high humidity.

2. Elevated boiling temperatures.

Sirups containing higher than 3% invert sugar can be used for making soft sugar cakes providing the concentration of the sirup is raised. This is done by raising the boiling point of the sirup to 35°F. above the boiling point of water instead of the usually recommended 32°F. (see Handbook No. 134, page 85). A number of soft sugar makers have been using the higher boiling point and none have reported any softening or deforming or molding of their soft sugar cakes. (None of these sugar makers tested their sirups for invert sugar content). This immediately raises the question as to why the higher boiling point had not been recommended before. The answer is that this higher boiling point, 35° F. elevation, favors the formation of graininess in the formed cakes, especially if the starting sirup is very low in invert sirup.

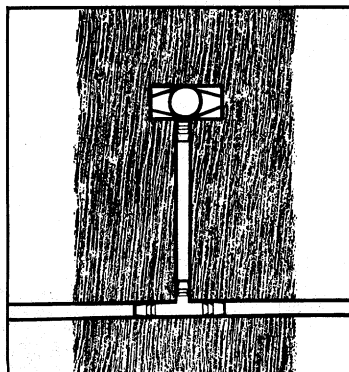
Using the higher elevation of boiling point, 35° F., in making the soft sugar has an additional advantage. It eliminates the need for corrections based on daily fluctuations in the boiling point of water. Thus, if the average (not the high or the low) temperature of boiling water at a given location is 209°, it is used as a base and the temperature of the boiling sirup is elevated 35°, or to 244° F. (209° + 35°).

3. A third and strongly recommended practice that extends the shelf life of soft sugar cakes is to crystal-coat them. (See Agriculture Handbook No. 134). Coating the cakes with a thin layer of sucrose crystals wraps them with a moisture-repellent layer which tends to prevent the cakes from picking up water during periods of high humidity as well as serving to prevent their drying out (formation of white spots) during storage periods of very low humidity.

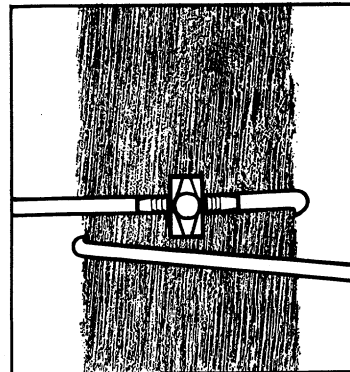
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